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ABSTRACT

This paper is part of a larger work developed over a period of three years on the interrelationship of theories of composing and interpreting. Following an introduction, the second and major part of the paper summarizes the four classifications of theoretical models of reading: information processing models, hypothesis testing models, developmental models, and schema models. The third part of the paper describes the isomorphic and ergodic principals in hermeneutics and displays a new configurational heuristic in the form of a 90-cell matrix that produces 2520 possibilities. (AEA)

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An Hermeneutical Conceptualization of Reading

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I. Introduction

This paper is part of a larger piece which has been developed over three years at meetings of this conference. Two years ago--in Kansas City--we held a panel entitled "The Interrelationship of Theories of Composing and Theories of Interpretation," at which I spoke about the essential interrelationship among the aspects of composing and of interpreting. That basic paper was titled "Meaning and Significance: The Hermeneutic as Isomorph."

In Denver (and in Minneapolis at CEE, in a slightly differing matter) I delivered the second paper--entitled "The Interrelationship of Psycholinguistic Researches and Hermeneutical Studies," which presented the substantial interrelationship of theories of composing and those of interpreting. Thus, having discussed the essential and the substantial interrelationships, I move today to the most crucial aspect: the aspect of elementary interrelationship.

There are several caveats. First, I have time (and this is stretching my allotment) to present only one side of this issue--and the part I shall present is the reading one-half, not the writing, for I think most of you will be able to infer the writing half from this presentation. Secondly, I cannot digress to discuss each reading theory thoroughly. Thirdly, I assume that the basic hermeneutic aspects of the present study are well enough known to allow me somewhat elliptically to present those aspects.

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Fourth, the only constant is flux. For this reason--discussed before in the isomorphic paper and the ergody paper--my research into the inter-relationship of composing and interpreting (modes of receiving and sending) has involved studies of the philosophy of science, dissipative mechanics, thermodynamics, mechanics, logic, as well as the more traditional studies of the processes of composing and considering, i.e., writing and speaking and reading and listening.

II. Theoretical Models of Reading--
A Short Summary

Let us turn our attention for a few moments to models developed to explain or describe the reading process. Since this area of inquiry is large [by my count over the last decade, some fourteen major articles/monographs/books which contain a "new" theoretical model of reading have been published], I shall summarize the state of the field by presenting four classifications of reading models: 1) information processing models, 2) hypothesis testing models, 3) developmental models, and 4) schema models. The first is quite similar to the basic machine communication model--say that of Claude Shannon and Warren Weaver--with some elaboration. Most of you have heard of the hypothesis testing model through the writings of and about Ken Goodman. The purely developmental model, which is the only causal—comparatively based model we shall entertain this session, is a transitional classification between the hypothesis testing model and the schema, or cognitive model. Those of you who have based your own work upon the models of, say, Lasswell or Berlo, Jakobson or Watzlawick will find

some interesting meat in these models.

[Omitted in this discussion are affective/attitudinal models, since my summary model will provide for the incorporation of the principally important aspects of these models. There is and will continue to be important work done in these areas--work of great interest to teachers of writing; I shall not treat these models here, though.]

Information processing models. Look at the Gough model-- Figure One. The "One Second of Reading" model is straightforward, so I'll not elaborately discuss it. I have in the model you see numbered five points which mark the five points about which I shall briefly comment.

1) Note that there is a provision for recognition of basic graphic patterns--a subsystem which works in tandem with the scanning system (Note the two-way arrows, which indicate that the pattern recognition subsystem interacts with the scanning system). Note, too, that number 2 indicates a two-way relationship between code book and decoder; similar phenomena are present, according to Gough, at numbers 4 and 5. At point 3 is presented the notion of the abstract phonemic tape, which is one of the most disputed aspects of Gough's model among supporters of the information processing models.

This dispute centers around the viability, the proof of the phonemic tape. Gough cites Chomsky and Halle's (1968) Sound Pattern of English. In that work, however, they write: "We feel, however, that the existence of such a level has not been demonstrated and that there are strong reasons to doubt its existence." (p. 11) It is (pardon my anaphora) an open question.

"ONE SECOND OF READING," Gough (1972)

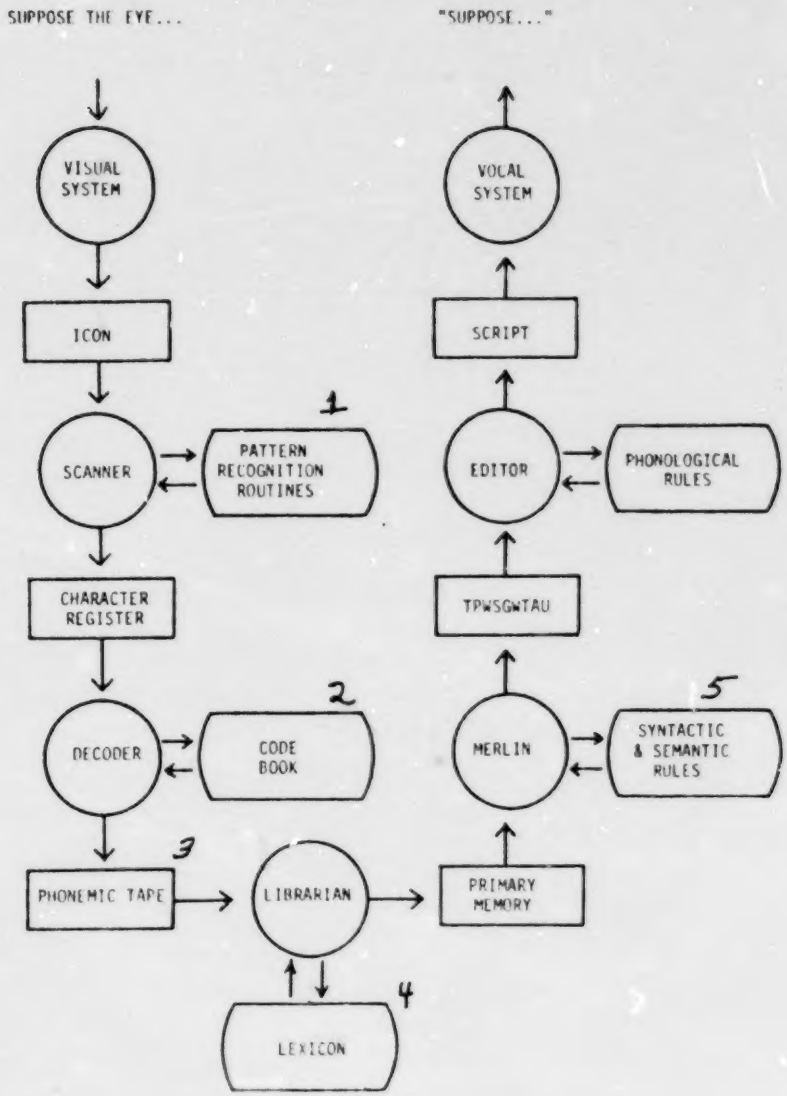


Figure One

Crucial to our discussion are numbers 1,2,4, and 5, which allow the introduction of the reader's experience. That is, the reader's experiences, knowledge about patterns--especially in this model graphemic patterns and abstract phonemic patterns, lexicon, and rules of syntactic and semantic relationships exist before reading the text. Also (back to the two-way arrows) these experiences and knowledges are augmented by each successive act of reading, hence learning is continuous.

Gough's model is designed to relate the operations he assumes must go on within one second of reading, as the text "Suppose the eye..." is first noticed, until the vocal system produces the sounds of 'Suppose the eye.'

In sum: information processing models are serial models (each grapheme or set of graphemes studied left to right, top of page to bottom) in which (it is assumed) the reader moves from print to meaning either through a speech loop, through a direct print-meaning jump (See, respectively, Conrad--1972--for the former and Kolers--1970--for the latter), or through a systematic phoneme loop. Gough has decided in favour of the third. Note, again, that this model is designed to produce oral reading, but stopping at TPWSGWTAU is possible--since that mouthful of letters stands for 'The Place Where Sentences Go When They Are Understood.'

Hypothesis testing models. Turn now to Figure Two

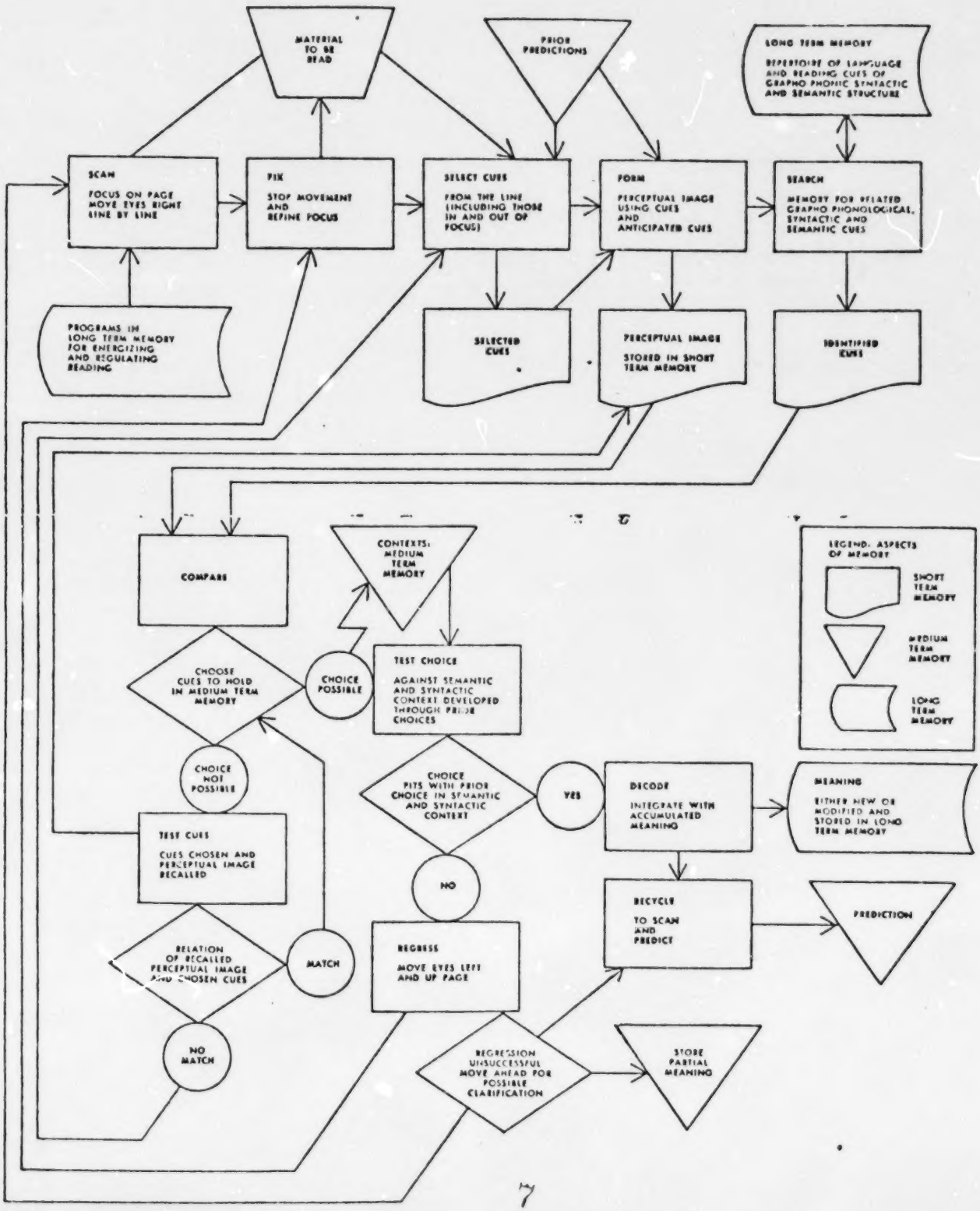
--the Goodman model of reading.

Reading, that "psycholinguistic guessing game," is according to Goodman a process of selective, anticipatory cueing, in which the reader predicts and then reads to confirm the prediction. So goes one part of the catechism of modern reading theory. And well it should, I think. For those of us who

Figure Two

THE GOODMAN MODEL OF READING

(1970)


MATERIAL TO BE READ
PRIOR PREDICTIONS
LONG TERM MEMORY
REPERTOIRE OF LANGUAGE AND READING CUES OF GRAPHO PHONIC SYNTACTIC AND SEMANTIC STRUCTURE
SCAN
FOCUS ON PAGE MOVE EYES RIGHT LINE BY LINE
FIX
STOP MOVEMENT AND REFINE FOCUS
SELECT CUES
FROM THE LINE (INCLUDING THOSE IN AND OUT OF FOCUS)
FORM
PERCEPTUAL IMAGE USING CUES AND ANTICIPATED CUES
SEARCH
MEMORY FOR RELATED GRAPHO PHONOLOGICAL, SYNTACTIC AND SEMANTIC CUES
PROGRAMS IN LONG TERM MEMORY FOR ENERGIZING AND REGULATING READING
SELECTED CUES
PERCEPTUAL IMAGE
STORED IN SHORT TERM MEMORY
IDENTIFIED CUES
COMPARE
CONTEXTS: MEDIUM TERM MEMORY
LEGEND: ASPECTS OF MEMORY
SHORT TERM MEMORY
MEDIUM TERM MEMORY
LONG TERM MEMORY
CHOOSE CUES TO HOLD IN MEDIUM TERM MEMORY
CHOICE POSSIBLE
TEST CHOICE
AGAINST SEMANTIC AND SYNTACTIC CONTEXT DEVELOPED THROUGH PRIOR CHOICES
CHOICE NOT POSSIBLE
CHOICE FITS WITH PRIOR CHOICE IN SEMANTIC AND SYNTACTIC CONTEXT
YES
DECODE
INTEGRATE WITH ACCUMULATED MEANING
MEANING
EITHER NEW OR MODIFIED AND STORED IN LONG TERM MEMORY
TEST CUES
CUES CHOSEN AND PERCEPTUAL IMAGE RECALLED
NO
RECYCLE
TO SCAN AND PREDICT
PREDICTION
RELATION OF RECALLED PERCEPTUAL IMAGE AND CHOSEN CUES
MATCH
REGRESS
MOVE EYES LEFT AND UP PAGE
NO MATCH
REGRESSION UNSUCCESSFUL MOVE AHEAD FOR POSSIBLE CLARIFICATION
STORE PARTIAL MEANING

work with relatively fluent readers, at relatively higher levels, this is certainly meaningful. The reader who cannot anticipate the difference between Joyce's Ulysses, Agee's "Carter," and Milton's Paradise Lost will certainly have difficulty in our classes (--but is that the problem for the student or the teacher????).

Since most of you are familiar with Goodman's model, I'll treat only of the especially significant aspects. Note that three entities exist before (above) the reading: the material to be read, prior predictions (yes, often based in knowledges of genre, e.g.) and the repertoire of language experiences--labelled 'long term memory' and placed into the oscilloscopic waveform.

You can trace through the predicting and confirming functions, without my help (just follow the lines), but I would like to call your attention to the triangles--the medium term memory. The triangle occurs four times in the model; see those? One is the "Prior Predictions" factor; one is "Context," actually the emerging context--note the position; one is "Prediction," and the last is "Store Partial Meaning."

Das Ahaerlebnis! These are the four crucial points. The model can provide for the emerging context, the partial meaning, and the prediction--original and continuous aspect. Meaning, both the principal and ultimate context, is a 'long term memory' function; it occurs thrice. We shall, time permitting, return to this point later.

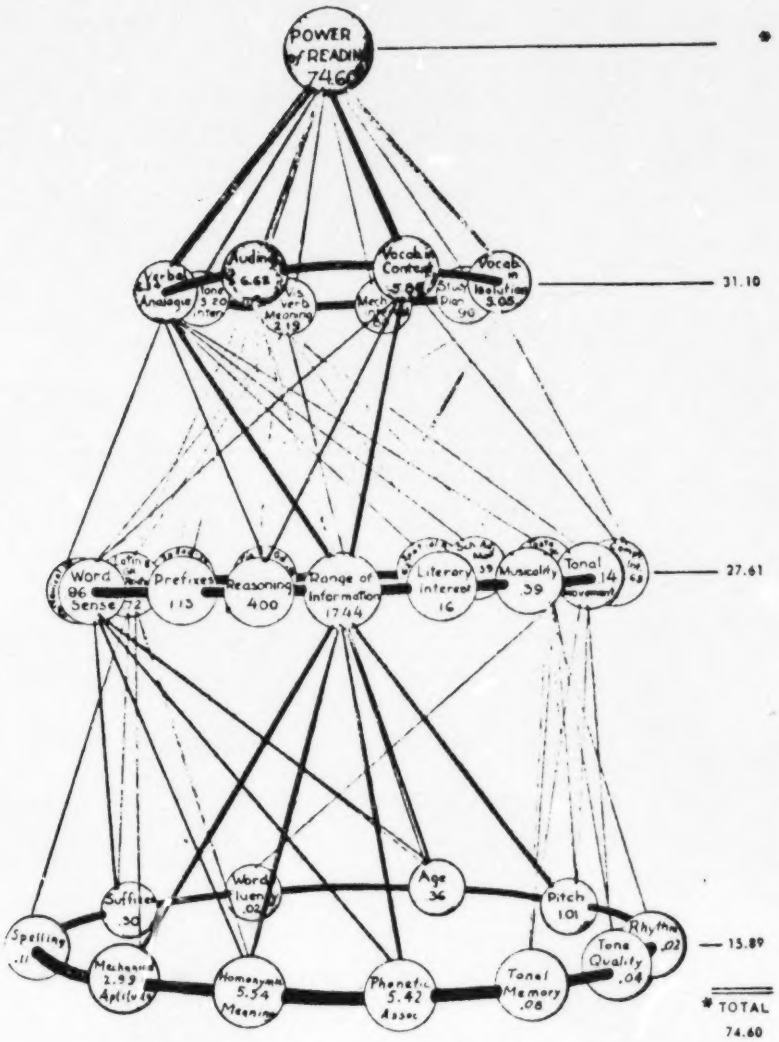
One final comment upon the Goodman and Gough models. Note that one is shorter, more compact but involves more abstraction and reified notions, while the other (the Goodman) is apparently more complex, but less mystical. The simple is often couched in the superficially complex, eh?

Developmental models. Figures Three, Four, and Five are graphic presentations of developmental models, which are--as I mentioned earlier--causal-comparatively derived models. That is, developmental models usually are derived by looking at the process from the product side of the black box, in an attempt to discover what must be working within the black box to produce that product. No silly arcana disciplina, that. Look at Figure Three.

Holmes and Singer can predict 74.6% of the variance in power of reading (a construct) from knowledge of reader's performance in various specific cells, which are interrelated in cell assemblies, in a three-tiered set of subsystems. That is, given a student score on the "mechanical aptitude" measure (lower left of bottom tier) one could infer 2.99% of the variance of 'power of reading.' From inferences of variance, it is statistically straightforward to adduce beta-regression formulae and move into prediction.

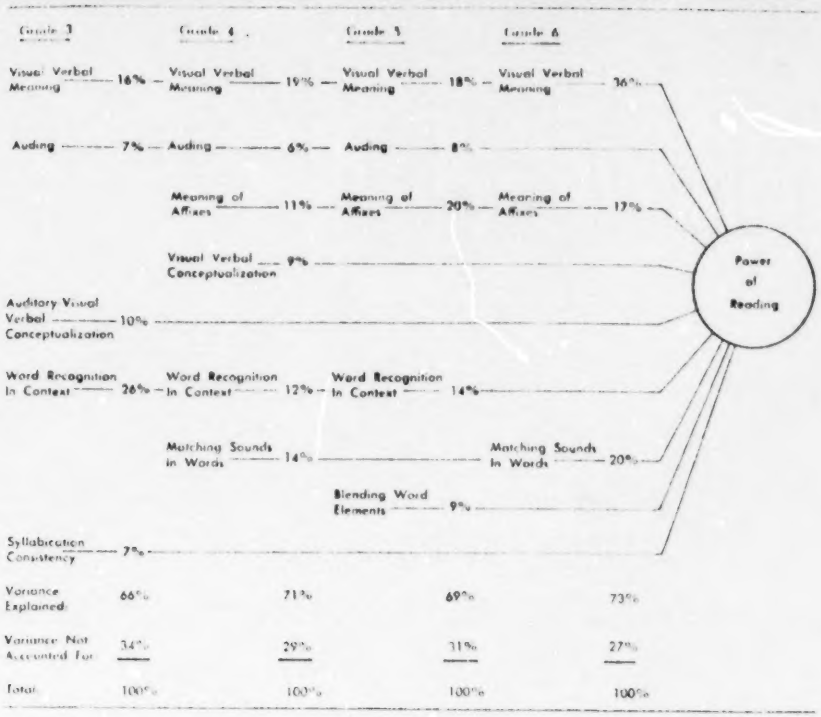
The two recombined 'models' in Figs.4& 5 of your materials may be more helpful. Note, in the Grades 3,4,5, and 6 comparison, that Singer can account for more and more of the variance in power of reading each year. Noting the figures on the bottom 'model' for high school and college, we see that this progression continues into the college years, resulting in an ability to pro-rate 78% of the variance in power of reading at the college level.

This classification is transitional since it belongs to neither class one or two and it shares some elements with classes two and four, but does not belong to four. It shares with the hypothesis testing models the considerations of the context in reading; with the final classification it shares developmental concerns which allow for (quite often) varying combinations of mental operations in reading at different levels.



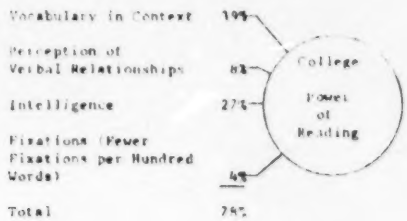
Model illustrates umbellating nature of lines-of-support for substrata-factors underlying Power of Reading at the high school level. The 74.60 percent of the variance accounted for in Power of Reading has been appropriately prorated to the underlying factors as indicated. Note that range of information or breadth of knowledge is the single most important factor. (From Holmes and Singer, 1961, 1965)

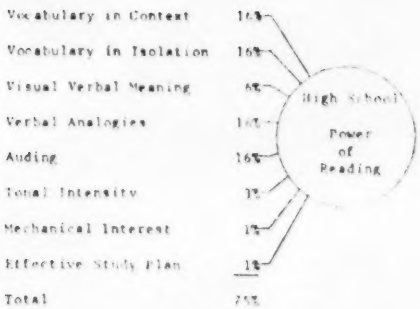
Figure Three

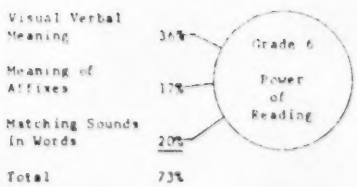


Diagrammatic model of the substrata-factors accompanying development of power of reading in grades 3 to 6. The model shows for each grade the first level substrata factors and their percent contributions to variance in power of reading. The variance *not* accounted for is probably attributable to attitudinal factors, verbal flexibility, and mobilizers.

Figure Four


Vocabulary in Context 19%
Perception of Verbal Relationships 8%
Intelligence 27%
Fixations (Fewer Fixations per Hundred Words) 4%
Total 78%
College Power of Reading





First level substrata factors and their percent contributions to variance in power of reading at the sixth grade, high school, and college levels. Harry Singer, 1961.

Figure Five

[I remark in passing that much of our "syntactic maturity" research shares the problems presented in this model, but that research has not been developed even half as far as this yet.]

Finally, note that Harry Singer alludes, caption for the model in Figure Four , to the importance of "attitudinal factors, verbal flexibility, and mobilizers."

Schema models. The last classification is schema, also known as cognitive, models. To those of you who have read materials about or by Jean Piaget, this will sound familiar. Cognitive or schema models are based on cognitive psychology and its models.

Schema models are often not diagrammed--for two reasons: knowledge is assumed to be personally coded, and diagramming reduces flexibility in the study of the model. Aspects of the schema models can be and have been diagrammed.

Nelson's statement is direct, cogent, and important to us:

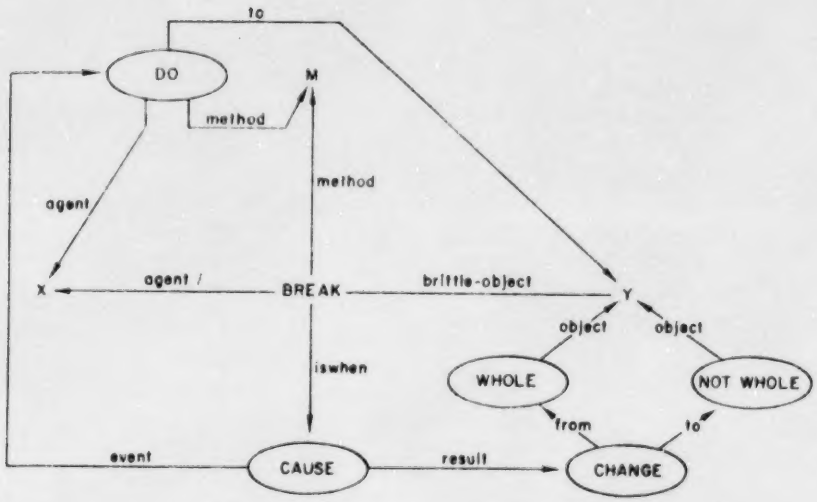
> The basic process of concept formation is the same throughout development, involving the construction of a functional core meaning based on relations of the novel event to other previously known events within the conceptual system, the addition of identifying attributes which distinguish it from similar concepts, giving it a name. The process may proceed from any direction: name, attributes, relationships. Concepts are organized and interpreted in terms of larger event structures which we have called scripts, which enable the child (or adult) to make predictions about recurrent events. (Nelson, 1977)

Allegiance of virtually all 'schema theorists' could be got for her statement by substituting the word 'schema' for the word 'scripts' in her last sentence.

Figure Seven is a diagram of one level of a scheme for the concept "break." While the scheme is self-explanatory, I feel compelled to point out the terms represented in the scheme here by Rummelhart and Ortony very closely resemble those used by Burke in his dramatistic pentad.

Many schema can be embedded into other higher level schema.

Petrie (Figure Seven) writes that one of the important and unresolved problems in schema theory (in reading and in general in schema theory as it applies to the acquisition of knwoedge) is the role of context. That is, is context



Diagrammatic representation of a BREAK schema.

Rummelhart and Ortony (1977)

Figure Six

Context ⟶ {Part of the Conceptual Scheme} or {Particular Existential Situation}

Petrie (1975)

Schema: ⟨ Specialization, Generalization, Generation

Rummelhart and Ortony (1977)

: ⟨ Assimilation, Accommodation

Anderson (1977)

Figure Seven

(a) schema-specific or is context an (b) existentially-based, situation-specific or (c) situation-general phenomenon? Ah, hermeneuts emerge!

Note, too, that Anderson follows a Piagetian framework in that he breaks down schemes into two main functions, assimilation and accommodation. Rummelhart and Ortony divide differently; 'generation' is the formation of new schemes, while generalization and specialization are modes of existing schemata.

Coda. In this part of my talk I have quickly reviewed the major camps of reading theory. Before moving on to the third and concluding part of my paper, I would like to present you with another model, this one verbal, which most closely represents hermeneutical conceptualizations of reading. Ready?

Mentally place the information on page six in one plane and that on page thirteen in an intersecting plane; add motivation, attitudinal factors, and cognitive/affective mobilizers either in meta-language or graphic form around the hypothesis testing model.

Voici.

III. Isomorphic and Ergodic Principals in Hermeneutics

In the Heideggerian concept of Dasein is implied, via the thrown-ness of being, being-with. In the first place, then, we see there are two hermeneutic progressions: part and whole within text and reader with text. That is to say, there are two particular relationships which are 1) text as particle and reader as particle and 2) part as particle and text as whole.

Just as the hermeneutic circle builds intratextually, so does hermeneutic reciprocality build between the reader and the text; and this construction usually progresses into an exaltingly refreshing stage of understanding by moving through some (arithmetic) first stages and later (geometric) middle stages of context establishment.

A writer begins with an idea and starts the crafting of the text; soon the already crafted portions of the text demand certain craftings-to-be. At this point the text has become a dynamic force, synthesizing and synthesized out of the interaction of the intent of the writer and the crafting of the text. The text becomes something apart from either the author's intent or the crafting of it. (See Burke's Counter-Statement, especially the piece "Poetic Process," for a more complete discussion of this idea.)

If reader as well as text can each be particle, then each could (as change occurs) be wave. Reader, text (both part and whole), and context become--by extention--field. Voila, this begins to sound familiar.

Could we move toward a configurational heuristic now? I think so--and it might begin to look like this. (See Figure Eight.)

Note that I have here portrayed Burke's pentad, the Coe-Kline isomorphs, and the tagmemic PWF division. The result is a 90 cell matrix; simply place into each cell the Aristotelian 28 enthymeme topics and we can derive a 90 x 28 matrix; that is, 2520 possibilities, at the basic non-branching level.

Of course, many of these overlap, but most do not--at least in terms of the focus of various probes we might routinely have students use.

In my first paper, two years ago, I argued that isomorphic considerations would allow us to generate text interpretation procedures from heuristic

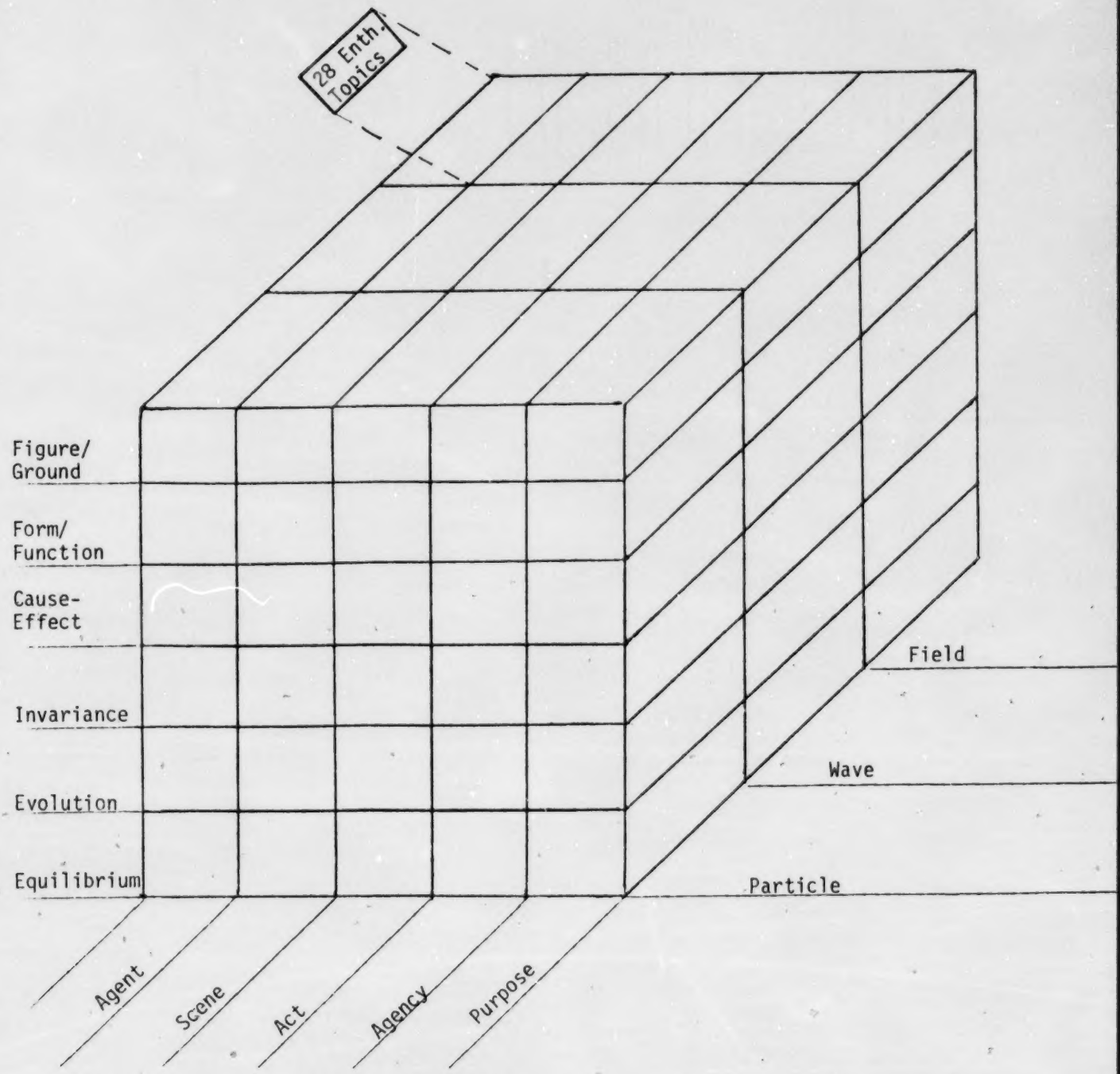


Figure Eight

procedures and vice versa. In like manner I argued that theories of composing and theories of interpretation are interpenetrating, are isomorphically based.

In closing I ask you to refer again to page six of your materials and consider how closely Mr. Goodman's model parallels the elaborated heuristic approach presented by Young, Becker, and Pike.

Perhaps we have our models. What we need now is to study those models from isomorphic and ergodic points of view.